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Hot Cores : Probes of High Redshift Galaxies?

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Abstract. The very high rates of second generation star formation detected and inferred in high redshift objects should be accompanied by intense millimetre-wave emission from hot core molecules. We calculate the molecular abundances likely to arise in hot cores associated with massive star formation at high redshift, using several different models of metallicity in the early Universe. If the number of hot cores exceeds that in the Milky Way Galaxy by a factor of at least one thousand, then a wide range of molecules in high redshift hot cores should have detectable emission. It should be possible to distinguish between different models for the production of metals and hence hot core molecules should be useful probes of star formation at high redshift.

Keywords. astrochemistry – cosmology : early universe – stars : formation